

WHAT IS CLAIMED IS:

1. A semiconductor device having a plurality of functional elements formed on a substrate comprising:

5 a slice line for cutting said substrate which is arranged along the outer periphery of said substrate, and a peripheral wire arranged between said slice line and said functional elements.

10 2. The semiconductor device according to claim 1, wherein

said peripheral wire is used for checking the acceptability of the cutting of said substrate.

15 3. The semiconductor device according to claim 1, wherein

said peripheral wire is connected to a constant electric potential.

20 4. The semiconductor device according to claim 3, wherein

said constant electric potential is the ground potential.

25 5. The semiconductor device according to claim 1, wherein

said peripheral wire has a pad section for checking electric conductivity.

6. The semiconductor device according to claim 1,
wherein

said peripheral wire is connected to drive wires
of said functional elements or signal wires.

5

7. The semiconductor device according to claim 1,
wherein

TFT elements and photoelectric converter elements
are arranged as functional elements on said substrate
10 and said peripheral wire is connected to bias wires of
said photoelectric converter elements.

8. The semiconductor device according to claim 6,
wherein

15 TFT elements and photoelectric converter elements
are arranged as functional elements on said substrate
and said peripheral wire is connected to bias wires of
said photoelectric converter elements.

20 9. The semiconductor device according to claim 9,
wherein

said substrate is an insulator.

25 10. The semiconductor device according to claim
1, wherein

said functional elements carry a wavelength
converter thereon.

5

10

15

20

25

said peripheral wire has a pad section for checking electric conductivity.

16. The semiconductor device according to claim
12, wherein

said peripheral wire is connected to drive wires
of said functional elements or signal wires.

5

17. The semiconductor device according to claim
12, wherein

TFT elements and photoelectric converter elements
are arranged as functional elements on said substrate
10 and said peripheral wire is connected to bias wires of
said photoelectric converter elements.

18. A semiconductor device according to claim 16,
wherein

15 TFT elements and photoelectric converter elements
are arranged as functional elements on said substrate
and said peripheral wire is connected to bias wires of
the photoelectric converter elements.

20 19. The semiconductor device according to claim
12, wherein

said substrate is an insulator.

25 20. The semiconductor device according to claim
12, wherein

said functional elements carry a wavelength
converter thereon.

21. The semiconductor device according to claim 20, wherein

said wavelength converter is a fluorescent substance.

5

22. A semiconductor device comprising a TFT substrate having a plurality of pixels of a plurality of TFT (thin film transistors) provided on the substrate,

10 wherein drive wires of said TFT are connected by way of a wire resistance R_s ;

each of the pixels on said TFT substrate comprises said TFT and a photoelectric converter element, bias wires of said photoelectric converter elements and
15 drive wires of said TFT being connected;

said TFT substrate has a slice line for cutting said TFT substrate arranged along the outer periphery thereof; and

a peripheral wire is arranged between said slice
20 line and said TFT substrate.

23. The semiconductor device according to claim 22, said peripheral wire is used for checking the acceptability of the cutting of said substrate.

25

24. The semiconductor device according to claim 22, wherein

said peripheral wire is connected to a constant voltage source.

25. The semiconductor device according to claim
5 22, wherein

said peripheral wire is held to the ground potential.

26. The semiconductor device according to claim
10 22, wherein

said peripheral wire has a pad section for checking electric conductivity.

27. The semiconductor device according to claim
15 22, wherein

said peripheral wire is connected to said TFT drive wires or signal wires.

28. The semiconductor device according to claim
20 22, wherein

said peripheral wire is connected to bias wires of said photoelectric converter elements.

29. A semiconductor device according to claim 27,
25 wherein

said peripheral wire is connected to the bias wires of said photoelectric converter elements.

TOP SECRET

30. The semiconductor device according to claim 22, wherein

said wire resistance R_s is expressed by $R_s > 100R_o$,

5 where R_o is the resistance between a TFT driver and a TFT drive terminal.

31. A radiation detection apparatus comprising:
a radiation source, and

10 a TFT substrate having a plurality of pixels of a plurality of TFT (thin film transistors) provided on the substrate,

wherein

15 each of the pixels on said TFT substrate comprises said TFT and a photoelectric converter element, bias wires of said photoelectric converter elements and drive wires of said TFT being connected;

20 said TFT substrate has a slice line for cutting said TFT substrate arranged along the outer periphery thereof; and

a peripheral wire is arranged between said slice line and said TFT substrate.

32. The radiation detection apparatus according to claim 31, further comprising a wavelength converter.

33. A radiation detection system having the

radiation detection apparatus according to claim 31 or
32 comprising:

signal processing means for processing signals
from said radiation detection apparatus;

5 recording means for recording signals from said
signal processing means;

display means for displaying the signals from said
signal processing means; and

transmission means for transmitting the signals
10 from said signal processing means.

34. A method of manufacturing the semiconductor
device according to claim 22 comprising the steps of:

cutting said substrate to predetermined dimensions
15 along said slice lines;

examining the electric conductivity of said
peripheral wire; and

mounting said TFT driver and said photoelectric
converter element driver after examining the electric
20 conductivity of said peripheral wire.

35. The method according to claim 34, further
comprising a step of:

connecting said peripheral wire to said TFT drive
25 wires or the bias wires of said photoelectric converter
elements.

36. The method according to claim 34, further comprising a step of:

cutting the connection of said peripheral wire and said TFT drive wires or said bias wires of said photoelectric converter elements at the connecting portion thereof after examining the electric conductivity of said peripheral wire.

37. The method according to claim 34, further comprising a step of:

bonding a plurality of substrates obtained after the cutting step.